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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,647	02/24/2005	Yves Hatzfeld	4559-045632	3698

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EXAMINER	
ZHENG, LI	

ART UNIT	PAPER NUMBER
1638	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/525,647	HATZFELD ET AL.	
	Examiner	Art Unit	
	Li Zheng	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-49* is/are pending in the application.

4a) Of the above claim(s) *20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19 and 21-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7202005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 19, 21-49, and SEQ ID NO: 18 in the reply filed on 8/18/2006 is acknowledged. The non-elected subjected matter must be removed from the claims.

The requirement is deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. The hyperlinks shown on the specification page 3, lines 32-34, need to be disabled.

Claim Objections

3. Applicant is advised that should claims 21-24 be found allowable, claims 26-29 and 32-35 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is

proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). In the instant case, claims 32-35 are duplicates of claims 26-29, and none of the claims recite any further limitation of the claims from which they depend.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 49 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 49 doesn't recite any positive method steps.

5. Claims 19, 21-49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

A review of the full content of the specification indicates that use of promoter sequence of SEQ ID NO: 18 is essential to practice the invention.

The Federal Circuit has recently clarified the application of the written description requirement. The court stated that a written description of an invention "requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials." (See *University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997)). The court also concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id. Further, the court held that to adequately describe a claimed genus, Patent Owner must describe a representative number of the species of the claimed genus, and that one of skill in the art should be able to "visualize or recognize the identity of the members of the genus." Id.

A review of the language of claims indicates that the claims are broadly drawn to a) a genus of sequences comprising "an isolated nucleic acid given in SEQ ID NO: 18" (emphasis added); b) a genus of sequences that are at least 90% identical to SEQ ID NO: 18; c) a genus of sequences that are capable of hybridizing under stringent condition to SEQ ID NO: 18; d) a genus of sequences of a) – c), which are interrupted by an intervening sequence; as well as f) a genus of sequences that are fragments of all the nucleotide sequences of a)-d), which are capable of driving expression. First, given that "an isolated nucleic acid given in SEQ ID NO: 18" encompasses any dinucleotide sequence in SEQ ID NO: 18, the claims reads on any sequence with promoter activity. Further, as discussed below, sequences that are capable of hybridizing under stringent condition to SEQ ID NO: 18 encompass sequences that are only 50% identical to the

SEQ ID NO: 18. However, the specification does not describe the structure of any other species in the claimed genus except for SEQ ID NO:18. Neither the specification nor the prior art teaches the conserved structures that are essential for the promoter activity. The only structures correlated with the promoter activity are the sequence of SEQ ID NO: 18. Not a single specie differing in sequence from SEQ ID NO: 18 and having their promoter activity is described in the specification. Therefore, given the breadth of the claim and the lack of further guidance, a person skilled in the art would conclude that applicants are not in possession of the claimed genera of promoters.

6. Claim 19 and 21-49 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for SEQ ID NO: 18 being a promoter for plants, does not reasonably provide enablement for a) sequences comprising "an isolated nucleic acid given in SEQ ID NO:18" (emphasis added), b) sequences that are at least 90% identical to SEQ ID NO: 18, c) sequences that are capable of hybridizing under stringent condition to SEQ ID NO: 18, sequences of a) – c), which are interrupted by an intervening sequence, as well as sequences that are fragments of all the nucleotide sequences of a)-d), which are capable of driving expression. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

The specification teaches that a 1130 bp fragment of SEQ ID NO: 18, upstream of coding sequence of rice HMGB1 gene, was isolated by PCR amplified as a putative promoter region for testing (pages 23-24, table 1; page 25, table 2; the paragraph

bridging pages 24-25). An expression construct (OS1434) containing SEQ ID NO: 18 as a promoter and the GUS gene as a reporter gene was constructed and transformed into rice plant by Agrobacterium-mediated transformation (page 26, lines 1-17). The specification also teaches that transgenic plants at different stages were analyzed. For example, in mature plant there was strong expression in young leaves, old leaves, embryo and aleurone. It was concluded that the promoter of SEQ ID NO: 18 is suitable for strong constitutive expression (page 31, lines 7-13).

Given that "an isolated nucleic acid given in SEQ ID NO: 18" encompasses any dinucleotide sequence in SEQ ID NO: 18, the claims reads on any promoter. The specification clearly does not teach all promoters. Undue experimentation would be required to determine all the promoters in all plant.

Further, even if the hybridization conditions were defined to be stringent, the claims would still not be enabled. The state-of-the-art teaches isolating DNA fragments using stringent hybridization conditions, does not always select for DNA fragments whose contiguous nucleotide sequence is the same or nearly the same as the probe. Fourgoux-Nicol et al. (1999, Plant Molecular Biology 40 :857-872) teach the isolation of a 674bp fragment using a 497bp probe incorporating stringent hybridization conditions comprising three consecutive 30 minute rinses in 2X, 1X and 0.1X SSC with 0.1% SDS at 65^0C (page 859, left column, 2^{nd} paragraph). Fourgoux-Nicol et al also teach that the probe and isolated DNA fragment exhibited a number of sequence differences comprising a 99 bp insertion and a single nucleotide gap, while the DNA fragment contained 2 single nucleotide gaps and together the fragments contained 27 nucleotides

mismatches. Taking into account the insertions, gaps and mismatches, the longest stretch of contiguous nucleotides to which the probe could hybridize consisted of 93 bp of DNA (page 862, Figure 2). In the present example, the isolated fragment of Fourgoux-Nicol et al exhibits less than 50% sequence identity with the probe to which the fragment hybridized. It is well known in the art that the promoter element essential for its function could be very small (Kim et al. 1994, *Plant Molecular Biology* 24: 105-117, abstract). For example, the DNA that has at least 50% sequence identity to the nucleotide sequence of SEQ ID NO: 18 could have more than 550 unmatched bases that are scattered along said nucleotide sequence. Since neither the specification nor the prior art teaches all the motifs required for promoter activity, it is not known which bases are indispensable for such promoter activity along the promoter region and which bases are not. Same argument also holds for sequences that are at least 90% identical to SEQ ID NO: 18 Therefore, in the absence of further guidance, undue experimentation would be required by one skilled in the art to make and use the claimed invention with DNA that has at least 90% sequence identity to the nucleotide sequence of SEQ ID NO:18. See *Genentech Inc. v. Novo Nordisk,* A/S (CA FC) 42 USPQ2d 1001 (Fed. Cir. 1997), which teaches that "the specification, not the knowledge of one skilled in the art" must supply the enabling aspects of the invention.

Further, the specification did not indicate that reverse complement DNA strands of SEQ ID No. 18 also have promoter activity, so nucleotide sequences capable of hybridizing to SEQ ID No. 18 are expected to be reverse complement to those sequences and therefore is unlikely to have promoter activity. Undue experimentation

would be required to use nucleotide sequences capable of hybridizing to SEQ ID No. 18 to produce expression cassettes.

Still further, without defining the length of the intervening sequence, the nature of the intervening sequence and the position where it can be inserted without disrupting the promoter activity, undue experimentation would be required to test a promoter interrupted by any sequence at any position.

Furthermore, the claimed expression cassette is for regulating expression in plants, however, claims 25 and 30 read on any transgenic host cell. The transgenic non-plant organisms are not enabled since a plant promoter is not expected to function similarly in other organisms, including prokaryotic unicellular cells which do no form tissue and have different cellular components to control expression of genes.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 19 and 21-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans et al (1992, Plant Mol. Biol. 20:1019-1028).

Evans et al. teach that an expression vector comprising pea metallothionein-like gene, PsMTa, driven by a constitutive promoter, CaMV 35S promoter, and a nos terminator was transformed into a dicot plant, *Arabidopsis thaliana*, by *Agrobacterium tumefaciens*. Transformed explants were plated onto SIM medium containing augmentin and kanmycin and propagated until callus tissue developed and shoot were formed. T0 transgenic plant was obtained by regeneration of the transformed plant cell and T1 plants were generated from seeds, which were produced by selfing of T0 plant (page 1022, Fig. 1 and the 1st paragraph of the left column; the paragraph bridging pages1024-1025). Because the recitation, "an isolated nucleic acid as given in SEQ ID NO: 18" (emphasis added), in part a) of claim 1 encompasses any dinucleotide sequence in SEQ ID NO: 1, claim 1 reads on any promoter comprising any dinucleotide sequence in SEQ ID NO: 1. The CaMV 35S promoter certainly comprises at least one dinucleotide sequence found within SEQ ID NO: 18. The reference thus meet all the limitations set forth by instant claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (2001, Genbank accession:AP004004) further in view of Wu et al. (2002, Genbank accession: AF541859), Padgette et al (1995, *Crop Sci.* 35:1451-1461) and An et al (1986, Plant Physiol. 81:301-305).

Sasaki et al. teach the sequence of BAC clone OJ1165_E01 from Oryza sativa (japonica cultivar-group) chromosome 6. Nucleotides 11218-10089 of the BAC sequence matches SEQ ID NO: 18.

Sasaki et al. do not teach nucleotides 11218-10089 of the BAC sequence can be used as a plant promoter. Sasaki et al. also do not teach expression cassette or vector using nucleotide sequences comprising SEQ ID NO: 18, operably linked to at least one heterologous nucleotide sequence and a 3' transcriptional terminator. Sasaki et al. do not teach the host cell/plant part/propagule of plant having said expression cassette.

Wu et al. teach the mRNA of rice HMGB1 gene.

Padgette et al teach CP4 EPSPS gene as a selection marker and nos terminator (page 1452, 2nd paragraph of the left column and page 1453, Fig 1A).

An et al. teach a method to transform tobacco (the paragraph bridging pages 301-302).

It would have been obvious to a person with ordinary skill in the art to make a expression cassette or vector using, for example, a 5 kb genomic DNA fragment of Sasaki et al., which is upstream of HMGB1 coding region as confirmed by the sequence of Wu et al., as a promoter to drive the expression of CP4 EPSPS gene together with

the nos terminator as taught by Padgette et al., and to transform the resulting vector into tobacco according the transformation method of An et al. One would have been motivated to do so, given that such a DNA fragment of Sasaki et al. is an obvious choice for promoters and the resulting expression cassette can be used for selecting Arabidopsis transformants. Any feature associated with SEQ ID NO: 18 obviously would be exhibited by the genomic fragment of Sasaki et al. The seeds and transgenic plant part will obviously be produced by the transgenic tobacco.

Conclusion

Claims 19 and 21-49 are rejected.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031. The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER